

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2004/001408

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. 7: C12N 5/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPIDS, MedLine, CA: enrich, isolate, select, primary culture, serum,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0911389 A2 (UNIVERSITY OF PITTSBURGH OF THE COMMONWEALTH SYSTEM OF HIGHER EDUCATION) 28 April 1999. Whole document, particularly pp 3-4 (Summary of the Invention), p 6, "Culture Medium", and claim 10.	1-3, 20-21
X	Hu D-H et al. Isolation and culture of iris pigment epithelium from iridectomy specimens of eyes with and without exfoliation syndrome. Arch Ophthalmol, 1997. 115: 89-94. Whole document, particularly Materials and Methods.	1-3
X	Finch LMB et al. Primary culture of ovine mammary epithelial cells. Biochem Soc Transact, 1996. 24: 369S. Whole Document.	1-3

☒ Further documents are listed in the continuation of Box C

☒ See patent family annex

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
6 January 2005

Date of mailing of the international search report

Name and mailing address of the ISA/AU
AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
E-mail address: pct@ipaaustralia.gov.au
Facsimile No. (02) 6285 3929

Authorized officer

Gillian Allen

Telephone No : (02) 6283 2266

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Klein-Soyer C et al. Effects of an extract of human brain containing growth factor activity on the proliferation of vascular endothelial cells in culture. Biol Cell, 1984. 52: 9-20 Whole document, particularly Materials and Methods	1-2.
X	Bonney RJ et al. Primary monolayer cultures of adult rat parenchymal cells suitable for the study of the regulation of enzyme synthesis. In Vitro, 1974. 9(6): 399-413. Whole document, particularly Materials and Methods.	1-2
X	Davidson PM et al. Isolation and growth of endothelial cells from the microvessels of the newborn human foreskin in cell culture. J Invest Dermatol, 1980. 75(4): 316-321. Whole document, particularly Materials and Methods.	1-3
X	Current Protocols in Molecular Biology. John Wiley & Sons, Inc., Supplement 63, July 2003, Appendix 3F, pages A.3F3-A.3F4. Culture media preparation.	1-3

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim No.:
Because it relates to subject matter not required to be searched by this Authority, namely:
2. ☒ Claim No.: 4
because it relates to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
The claim is so unclear that no meaningful search can be carried out.
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
The ISA has found 10 separate inventions. For details see Supplemental Box III

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos: 1-3 and part claims 20 and 21

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

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Supplemental Box III

(To be used when the space in any of Boxes I to VIII is not sufficient)

Continuation of Box No; III: Unity of invention.

Independent claims 1, 5 and 10 comprise a first group (A) of claims relating to the general concept of primary cell culture utilising a culture medium with greater than 25% serum.

The remaining independent claims 22, 30, 31, 33, 36, 40, 42, 46, 57, 79, 80, 85, 91, 92, 93 and 94 form a second group (B) of claims relating generally to the use of mesenchymal connective tissue-derived stem cells.

A Group

A posteriori, claims 1, 5 and 10 do not form a single inventive concept. They are linked by the concept of a culture medium comprising more than 25% serum, but such culture media are not novel, nor is their use in primary tissue cultures, (see novelty objections). Each of independent claims 1, 5 and 10 is therefore considered to define a separate invention (3 inventions – A(i), A(ii) and A(iii)).

B Group

Stem cells derived from mesenchymal connective tissue (eg fat or bone) are well-known in the art, and so cannot form a special technical feature uniting the B group of inventions.

Group B(i) includes independent claims 22, 30 and 79. This group relates to mesenchymal connective tissue-derived stem cells *per se* or compositions of such cells.

Group B(ii) includes independent claim 31, which relates to the introduction of mesenchymal connective tissue-derived stem cells into a blastocyst for the production of chimaeric fetuses.

Group B(iii) includes independent claims 33, 36, and 40. This group relates generally to the concept of expansion of mesenchymal connective tissue-derived stem cells.

Group B(iv) includes independent claim 42, which relates to the differentiation of mesenchymal connective tissue-derived stem cells.

Group B(v) includes independent claims 46, 57 and 80 which relate to the administration of mesenchymal connective tissue-derived stem cells for the purpose of reconstituting a defect in an organism.

Group B(vi) includes independent claim 85 which relates to the inhibition of rejection of cellular transplants.

Group B(vii) includes independent claims 91, 92, 93 and 94. This group relates to methods involving nuclear transfer with mesenchymal connective tissue-derived stem cells.

The International Searching Authority has therefore identified 10 inventions: three from group A and seven from group B.

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Information on patent family members

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This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report	Patent Family Member
EP 091138902	CA 2243130 A1
	US 6074874 A
	US 6383805 B1
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.	
END OF ANNEX	